

REMARKS

Claims 1-27 are currently pending in the subject application, and are presently under consideration. Claims 1-27 are rejected. Claims 1, 19, and 26 have been amended. Claims 2-4, 20, and 27 have been cancelled. Favorable reconsideration of the application is requested in view of the amendments and comments herein.

I. Rejection of Claims 1, 2-6, 10-12, and 19-21 under 35 U.S.C. §102(b)

Claims 1, 2, 4-6, 10-12, 19, and 21 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,564,097 to Swanke ("Swanke"). Claims 3 and 20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Swanke in view of U.S. Publication No. 2002/0054619 to Haas ("Haas"). Claim 1 has been amended to incorporate the subject matter of claims 2 and 3, and claims 2-4 have been cancelled. Claim 19 has been amended to subject matter similar to that of claim 20, and claim 20 has been cancelled. Accordingly, the following will focus on the patentability of claims 1, 5-6, 10-12, 19, and 21 over Swanke and Haas.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). Claim 1 recites a spreading code generator that produces a direct sequence spread spectrum (DS-SS) signal and a frequency hopped spread spectrum (FH-SS) signal and combines the DS-SS and FH-SS signals to provide a spreading signal and a spreader that combines the spreading signal with an input signal to provide a spread input signal. A signal converter converts the spread input signal from a first domain to a second domain to provide a converted spread input signal. A despreader despreads the converted spread input signal to provide the input signal in the second domain. It is respectfully submitted that Swanke and Haas, taken alone or in combination, fail to teach or suggest all of the elements of claim 1.

Neither Swanke nor Haas, taken alone or in combination, teach combining a DS-SS signal and a FH-SS signal to provide a spreading signal. As noted in the Office Action, Swanke does not provide this teaching. Haas appears to teach a dual-protocol transceiver system that

utilizes DS-SS desreading during a low power mode and FS-SS spreading and desreading while in an active transmission mode. There is no teaching or suggestion in Haas of combining the two spreading signals to spread or despread a single signal as recited in claim 1. Instead, the two spreading codes are used as alternatives depending on the current mode of the system. Even if one skilled in the art were motivated to combine the teachings of Swanke and Haas, the resulting system, at best, would include the ability to switch between a FS-SS spreading code and a DS-SS spreading code, as taught in Haas. Such a system would satisfy the motivation given in the Office Action by providing a system that produces both spreading codes, but would not read on the claim 1. It is thus respectfully submitted that claim 1 defines patentable invention over Swanke and Haas.

Claim 19 contains subject matter similar to that of claim 1, and should be allowable for the same reasons. Claims 5-6, 10-12, and 20 each depend, directly or indirectly, from one of claims 1 and 19, and are allowable for at least the same reasons. Accordingly, claims 1, 5-6, 10-12, 19, and 20 should be patentable over the cited art, and withdrawal of this rejection is respectfully requested.

II. Rejection of Claims 9, 13-15, 17, and 25-27 under 35 U.S.C. §102(b)/§103(a)

Claim 26 has been rejected as anticipated by Swanke. Claims 9, 13-15, 17, 25 and 27 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Swanke in view of U.S. Publication No. 2002/0160732 to Panasik, et al. ("Panasik"). Claim 26 has been amended to incorporate the subject matter of claim 27, and claim 27 has been cancelled. The following thus focuses on the patentability of claims 9, 13-15, 17, 25, and 26 over Swanke and Panasik.

Claim 13 recites a signal conversion system. A spreading code generator produces a direct sequence spread spectrum (DS-SS) signal. A spreading circuit receives an input signal and combines the input signal with the DS-SS signal to provide a spread input signal. A clipping component reduces peaks associated with the spread input signal. A desreading circuit desreads the peak reduced spread input signal.

The Office Action notes that Swanke does not teach the recited clipping component, and relies on Panasik to provide a clipping component implemented upstream of an analog-to-digital converter. According to the Office Action, one skilled in the art would be motivated to include the clipping component to limit the dynamic range of the signal to an associated dynamic range of the analog-to-digital converter. It is respectfully submitted, however, that one skilled in the art would not seek to clip a spread signal for this purpose as the spreading of the signal already provides a decrease in the dynamic range of the signal at the expense of an increase in bandwidth. *See* Specification at ¶0031. The further addition of a clipping element would be redundant and introduce addition error, as clipping introduces nonlinearities into the signal. Accordingly, one skilled in the art would not seek to utilize clipping with a spread signal, as is evidenced by the fact that the references dealing with a spread signal, Swanke and King (U.S. Patent No. 6,683,905), do not appear to utilize a clipping element prior to signal conversion. As described in the Specification with reference to the claimed system, Applicants have determined that the spreading of the signal also acts to mitigate nonlinearities introduced into the signal, for example, via clipping. *See* Specification at ¶0055. As a result, the claimed system was implemented to allow the necessary dynamic range for the analog-to-digital converter (or digital-to-analog converter) to be reduced without significantly impacting the signal. It is thus respectfully submitted that claim 13 defines patentable invention over Swanke and Panasik.

Claim 26 contains subject matter similar to that of claim 13 and should be allowable for at least the same reasons. Claims 14, 15, and 17 depend from claim 13 and should be allowable for at least the same reasons. Claim 9 depends from claim 1, and claim 25 depends from claim 19. Claims 9 and 25 should be allowable for at least the reasons provided for their respective base claims. Panasik does not remedy the deficiencies of Swanke and Haas as set forth above in the discussion of claims 1 and 19. It is thus respectfully submitted that claims 9, 13-15, 17, 25, and 26 define patentable invention over the cited art, and the withdrawal of this rejection is respectfully submitted.

III. Rejection of Claims 7, 8, 22 and 23 under 35 U.S.C. §103(a)

Claims 7, 8, 22 and 23 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Swanke in view of U.S. Patent No. 6,683,905 to King, et al. ("King"). Claims 7 and 8 depend from claim 1, and claims 22 and 23 depend from claim 19. Claims 7, 8, 22, and 23 should be allowable for at least the reasons provided for their respective base claims. King does not remedy the deficiencies of Swanke and Haas as set forth above in the discussion of claims 1 and 19. It is thus respectfully submitted that claims 7, 8, 22, and 23 should be patentable over the cited art, and withdrawal of this rejection is respectfully requested.

IV. Rejection of Claim 24 under 35 U.S.C. §103(a)

Claim 24 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Swanke in view of U.S. Patent No. 5,802,101 to Maruyama ("Maruyama"). Claim 24 depends from claim 19, and should be allowable for at least the reasons provided for claim 19. Maruyama does not remedy the deficiencies of Swanke and Haas as set forth above in the discussion of claim 19. It is thus respectfully submitted that claim 24 should be patentable over the cited art, and withdrawal of this rejection is respectfully requested.

V. Rejection of Claims 16 and 18 under 35 U.S.C. §103(a)

Claims 16 and 18 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Swanke in view of Panasik as applied to claims 13 and 15, and further in view of King. Claims 16 and 18 each depend, directly or indirectly from claim 13, and should be allowable for at least the reasons provided for claim 13. King does not remedy the deficiencies of Swanke and Panasik as set forth above in the discussion of claim 13. It is thus respectfully submitted that claims 16 and 18 should be patentable over the cited art, and withdrawal of this rejection is respectfully requested.

CONCLUSION

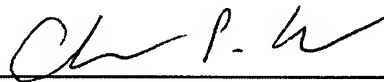
In view of the foregoing remarks, Applicants respectfully submit that the present application is in condition for allowance. Applicants respectfully request reconsideration of this application and that the application be passed to issue.

Please charge any deficiency or credit any overpayment in the fees for this amendment to our Deposit Account No. 20-0090.

Respectfully submitted,

Date

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